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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

OJINI, EZIAMARA ANTHONY

ART UNIT PAPER NUMBER

3723

DATE MAILED: 11/19/2003

28

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,172

Applicant(s)

CRON, BRIAN E.

Examiner

Anthony Ojini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Applicant's election of Group 1 (claims 1-11) and cancellation of claims 12-35 in Paper No. 3 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Lofaro (6,012,968).

With respect to claim 1, Lofaro discloses a method for conditioning a surface of a polishing pad (9) in chemical mechanical polishing comprising the step of exposing the pad surface to steam (see col. 4, lines 6-11 & fig. 2).

With respect to claim 4, Lofaro discloses wherein the steam (27) is jetted onto the pad surface (9) from a head (21) that is displaced relative to the pad surface during the exposure of the pad surface to the steam (see fig. 2).

With respect to claim 5, Lofaro discloses wherein the pad (9) has a contaminant associated therewith prior to the conditioning, and wherein a chemical agent suitable for reacting with the contaminant is within the steam during the exposure of the pad surface to the steam (see col. 4, lines 6-8, 28-43 & fig. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2,6,7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofaro (6,012,968).

With respect to claim 2, Lofaro discloses wherein the steam (27) is jetted onto the pad surface (9) to impact the surface with a pressure of from 80 psi to about 150 psi but fails to disclose a pressure of from 10¹⁴⁻²⁴ psig to about 20¹⁴⁻³⁴ psig.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify apparatus with steam jet having a pressure of from 10 psig to about 20 psig, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claims 6,7,8, Lofaro fails to disclose wherein the chemical-mechanical polishing utilizes the pad to polish a copper-containing material; and wherein ammonium and ammonium citrate is within the steam during the exposure of the pad surface to the steam.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify apparatus with steam jet wherein the chemical-mechanical polishing utilizes the pad to polish a copper-containing material; and

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wherein ammonium and ammonium citrate is within the steam during the exposure of the pad surface to the steam, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lofaro (6,012,968) in view of Nishimura et al. (6,332,835 B1).

With respect to claim 3, Lofaro fails to disclose wherein the steam has a temperature of at least about 200⁰F as it impacts the surface of the pad.

Nishimura et al. disclose a steam that has a temperature of at least about 200⁰F as it impact surface of substrate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus with a steam that has a temperature of at least about 200⁰F in view of Nishimura et al. so as to dislodge and remove particles from the surface of the pad.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofaro (6,012,968) in view of Brunelli (6,533,647 B1).

With respect to claims 9-11, Lofaro fails to disclose wherein the pad is rubbed against a conditioning stone during, prior, and after the exposure to the steam respectively.

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Brunelli discloses a method of planarizing surface of a polishing pad (240) wherein the pad is rubbed against a conditioning disk (250) during, prior, and after an exposure to a steam respectively (see fig. 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus with conditioning disk wherein the pad is rubbed against the conditioning disk during, prior, and after an exposure to a steam respectively in view of Brunelli so as to dislodge and remove particles from the surface of the pad.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide apparatus with conditioning stone, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Boehm, Jr. et al., Obeng, Walker et al. and Franca et al. disclose polishing pad exposed to a steam respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Ojini whose telephone number is 703 305

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3768. The examiner can normally be reached on 7.30 to 5.00 Tuesday-Friday with every other Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 703 308 2687. The fax phone number for the organization where this application or proceeding is assigned is 703 308 3590.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 1148.

A handwritten signature in black ink, appearing to read "A. E. Hail", is located in the lower right quadrant of the page.

AO
November 14, 2003